

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Patrick W. Kinney,
Ronald L. Mahany, and
Guy J. West

Serial No.: 08/258,285 Group Art Unit: 2302

Filed: June 10, 1994 Examiner: Krishna Malyala

For: "ANTENNA CAP, ANTENNA CONNECTORS AND TELEPHONE
LINE CONNECTORS FOR COMPUTER DEVICES UTILIZING
RADIO AND MODEM CARDS"
(Attorney Docket No. 38000FB)

Assistant Commissioner for Patents
Washington D.C. 20231

Sir:

I hereby certify that this paper is being
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class mail addressed to Assistant
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D.C. 20231.

John H. Sherman 12/29/95
John H. Sherman
Reg. No. 16,909

Date

AMENDMENT

Responsive to the Official Action of October 13, 1995, please amend the
above-identified application as follows:

In the Specification:

Please enter the enclosed new drawing figures 2A, 2B, and 2C into the
application. Please enter the enclosed corrected drawing figures 27 and 28 into
the application.

Please amend the specification as follows:

In the Brief Description of the Drawings section, on page 5, before the
paragraph beginning "Fig. 3 is ...", please insert the following:

--Fig. 2A is a block diagram of a radio card containing a radio
transceiver in accordance with the present invention;

Fig. 2B is a block diagram of a modem card containing a modem in
accordance with the present invention;

Fig. 2C is a block diagram of a modem card containing a modem and a
cellular telephone in accordance with the present invention;--

In the Best Modes for Carrying Out the Invention section, at page 7 line 12, please delete "(not shown)" and insert therefor --(10A, Fig. 2A)--.

At page 8, before the paragraph beginning "The radio card (10) of Figs. 1-4 ...", please insert the following:

--Referring to Fig. 2A, a radio card (10) is shown in accordance with the present invention. The radio card (10) has a housing (13) and contains a radio transceiver (10A). The radio transceiver (10A) is electrically connected to an antenna contact block (17), which may for example be a pair of antenna contacts (15, Fig. 2). The radio card (10) may optionally have additional antenna contacts (see 20, Fig. 1) electrically connected to the radio transceiver (10A). The radio transceiver (10A) is not shown in Fig. 2A to scale, nor are the relative positions of the radio transceiver (10A) or the antenna contact block (17) on the radio card (10) drawn for accuracy; Fig. 2A is a block diagram intended only to show functional blocks of the radio card (10).

Referring to Fig. 2B, a modem card (35) is shown in accordance with an embodiment of the present invention. The modem card (35) has a housing (36) and contains a modem (35A). The modem (35A) is electrically connected to a contact block (37), which may for example be a pair of contacts connecting to a telephone line or a cellular phone (not shown). The modem card (35) may optionally have additional antenna contacts (see 20, Fig. 1) electrically connected to the modem (35A). The modem (35A) is not shown in Fig. 2B to scale, nor are the relative positions of the modem (35A) or the contact block (37) on the modem card (35) drawn for accuracy; Fig. 2B is a block diagram intended only to show functional blocks of the modem card (35).

Referring to Fig. 2C, a modem card (35) is shown in accordance with another embodiment of the present invention. The modem card (35) has a housing (36) and contains a modem (35A) and a cellular phone device (38). The cellular phone device (38) is electrically connected to a contact block (39), which may for example be a pair of contacts connecting to a cellular phone antenna (not shown). The modem card (35) may optionally have additional antenna contacts (see 20, Fig. 1) electrically connected to the modem (35A) or cellular phone (38). The modem (35A) and the cellular phone (38) are not shown in Fig. 2C to scale, nor are the relative positions of the modem (35A), cellular phone (38) or contact block (39) on the modem card (35) drawn for accuracy; Fig. 2C is a block diagram intended only to show functional blocks of the modem card (35).--

At page 8, line 13, please delete "(not shown)" and insert therefor --(35, Figs. 2B and 2C)--.

At page 11, line 16, please delete "(not shown)" and insert therefor --(10A, Fig. 2A)--.

At page 11, line 24, after 'radio transceiver' please insert --(10A, Fig. 2A)--.

At page 11, line 26, after 'radio transceiver' please insert --(10A, Fig. 2A)--.

At page 12, line 4, please delete "cap (122)" and insert therefor --cap (120)--.

At page 12, line 6, please delete "cap (122)" and insert therefor --cap (120)--.

At page 12, line 23, please delete "cap (132)" and insert therefor --cap (134)--.

At page 12, line 24, please delete "outwardly extending lip (136)" and insert therefor --outwardly extending lip (135)--.

REMARKS

Drawings

Applicant acknowledges the informal nature of the drawings, and will place the drawings in proper form upon allowance.

The Examiner has noted that the drawings for figures 27 and 28 do not correspond to the specification on pages 9 and 10. This irregularity is due to Applicants' inadvertent error in filing the application. With this Amendment, the correct drawings for figures 27 and 28 are being submitted. Applicants respectfully point out that these drawings for figures 27 and 28 are the same drawings present in previously filed Serial No. 08/226,256 (Docket No. 38000FA) filed April 11, 1994, and Serial No. 08/194,178 (Docket No. 38000F) filed February 9, 1994, from which priority is claimed in the instant application under 35 U.S.C. Sec. 120. Additionally, the description of figures 27 and 28 in the instant application is identical to the description of those figures in Serial No. 08/226,256 [see p. 10 line 3 - p. 11 line 4] and in Serial No. 08/194,178 [see p. 12 line 5 - p. 13 line 26], and this description clearly applies to the corrected figures 27 and 28 rather than figures 27 and 28 as originally (and inadvertently) filed in the instant application. Applicants therefore urge that

the corrected figures 27 and 28 present no new matter, and their entry in the instant application is respectfully requested.

The Examiner has also objected to the drawings under 37 C.F.R. Sec. 1.83(a), indicating that the radio, cellular phone, and modem inside the card must be shown or the feature canceled from the claims. With this Amendment, Applicants submit new drawing figures 2A, 2B, and 2C, and accompanying description to illustrate the claimed features. Figure 2A illustrates a radio card (10) having a radio transceiver (10A) within its housing (13), electrically connected to an antenna contact block (17). This configuration is supported in the specification as filed at page 7 lines 10-21. Figure 2B illustrates a modem card (35) having a modem (35A) within its housing (36), electrically connected to a contact block (37). This configuration is supported in the specification as filed at page 8 lines 13-17. Figure 2C illustrates a modem card (35) having a modem (35A) and a cellular phone (38) within its housing (36), electrically connected to a contact block (39). This configuration is supported in the specification as filed at page 8 lines 13-17. Applicants therefore urge that new drawing figures 2A, 2B and 2C contain no new matter and show the claimed radio, cellular phone, and modem features, and respectfully request that the Examiner withdraw the objection to the drawings under 37 C.F.R. Sec. 1.83(a).

Claim Objections

The Examiner has objected to claim 12 because "Examiner believes that second should be third in these claims (sic) or the claim is equal to claim 11." Applicants respectfully submit that claim 12 in its current form is not equal to claim 11, since claim 11 depends from claim 7 and claim 12 depends from claim 8. Thus, claim 12 includes the "third pair of receiving means antenna contacts" and the "third antenna", where claim 11 does not. Applicants therefore respectfully request that the Examiner's objection to claim 12 be withdrawn.

Claim Rejections - 35 U.S.C. Sec. 112

The Examiner has rejected claims 17-37 under 35 U.S.C. Sec. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, the Examiner has identified the terms 'cap', 'lip' and 'band' as vague and indefinite, having "not been well defined in the specification."

The Examiner stated in the Official Action (dated 10/13/95) that "the drawings didn't show which end of the card mates with the computer. Is the card inserted in backwards to mate with the cap." Applicants respectfully submit that figure 19 shows the connection between the card (140) and the cap (134). The cap (134) mates with the housing (132) of the computer device (130). Connection between the card (140) and the cap (134) is accomplished through contacts (151 and 152) disposed on the cap (134) and contacts (141 and 142) disposed on the card (140). These contacts may make connection by utilizing a metal button type of contact, male/female connections, or spring type contacts. [See specification p. 12 line 23 - p. 13 line 13.] In addition, page 11 lines 19-27 disclose that the radio card (110) interfaces with the computer device (111) via sockets on the card (110) and pins on the computer device (111). Applicants therefore urge that the drawings and specification show that the card is not inserted in backwards to mate with the cap, but rather that connection between the card and the cap is clearly shown in figure 19 and described in the specification.

As for the term 'lip', Applicants respectfully submit that the specification and drawings provide sufficient antecedent basis for the use of the term 'lip' in the claims. Figures 19-22 clearly show lip (135) sealingly engaging the housing (132) of the computer device (130). [See specification p. 12 line 23 - p. 13 line 1.] Additionally, the reference to "outwardly extending lip (136)" at page 12 line 23 of the specification has been corrected with this Amendment to read "outwardly extending lip (135)", more clearly and correctly defining the term 'lip' as used in the claims. Applicants therefore urge that the term 'lip' is sufficiently defined in the drawings and amended specification.

As for the term 'band', Applicants respectfully submit that the specification and drawings provide sufficient antecedent basis for the use of the term 'band' in the claims. After correcting the specification according to this Amendment to change the reference to "the cap (122)" to "the cap (120)" at page 12 line 4 and at page 12 line 6 of the specification, the specification discloses a "flexible band (122)" in figures 14-16 for attaching the cap (120) to the housing (112) of the computer device (111). One end of the band (122) is connected to the cap (120) while the other end is attached to the housing (112). [See specification p. 12 lines 3-7.] Figures 17 and 18 also disclose a band (136) attached to both the cap (134) and the housing (132) to help prevent the loss of the cap (134) when the cap (134) is not engaged in the housing (132) of the

computer device (130). [See specification p. 12 lines 19-23.] Applicants therefore urge that the term 'band' is sufficiently defined in the drawings and amended specification.

For the reasons cited above, including the amendments to the specification to correct inadvertent numbering errors in referring to elements of the drawings, Applicants respectfully request that the Examiner withdraw the rejections of claims 17-37 under 35 U.S.C. Sec. 112.

Claim Rejections - 35 U.S.C. Sec. 102 & 103

The Examiner has rejected claims 1-16 and 38-47 under 35 U.S.C. Sec. 102(e) as being anticipated by Broadbent et al (5,445,525). The Examiner has rejected claims 17-37 under 35 U.S.C. Sec. 103 as being unpatentable over Broadbent et al and well known means in the radio and modem card art. Applicants traverse these rejections, without addressing their substantive merits, by relying upon the priority date claimed under 35 U.S.C. Sec. 120 of previously filed U.S. application Serial No. 08/226,256 (Docket No. 38000FA) filed April 11, 1994. This claimed priority date is before the May 12, 1994 filing date of the Broadbent et al patent, which accordingly does not qualify as prior art under 35 U.S.C. Sec. 102(e) ["A person shall be entitled to a patent unless -- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent..."]. Applicants rely upon the filing date of U.S. application Serial No. 08/226,256 because it is sufficient to antedate the Broadbent et al reference; Applicants make no statement regarding the existence of support for the current claims in other earlier filed applications.

Support for the current claims is found in U.S. application Serial No. 08/226,256 as follows:

CLAIM 1 (independent)

a radio card - e.g. radio card (10), Fig. 1

a housing - housing (13), Fig. 1

a radio disposed within said housing - specification p. 7 lines 13-14
["The radio card (10) has a housing (13) inside which is a completely operation radio transceiver (not shown)."]

a pair of radio antenna contacts positioned on said housing - antenna contacts (15), Fig. 1

a radio electrical interface - holes (31), Fig. 4;
means for receiving said radio card - receiving device (11), Fig. 1
means...for engaging said radio electrical interface - pins (30), Fig. 1
a pair of receiving means antenna contacts... - antenna contacts (16), Fig. 1
an antenna - specification p. 7 lines 19-22 ["The antenna contacts (16) on the receiving device (11) are connected to an antenna cable (18). The antenna cable (18) is in turn connected to an antenna (not shown)."]

CLAIMS 2-5 (dependent)

See Fig. 1, specification p. 7 line 11 - p. 8 line 16.

CLAIM 6 (independent)

See support cited for Claim 1 above.

CLAIMS 7-12 (dependent)

See Fig. 1, specification p. 7 line 11 - p. 8 line 16.

CLAIM 13 (independent)

See support cited for Claim 1 above.

at least three pair of receiving means antenna contacts - antenna contacts (16), (22) and (22), Fig. 2

CLAIM 14 (independent)

See support cited for Claim 1 above.

a modem card - specification p. 8 line 16 ["The radio card (10) of Figs. 1-4 might also be a modem card (not shown)."]
telephone line contacts/telephone means - specification p. 8 lines 16-21 ["...the modem card would be connected to a traditional phone line"]

CLAIM 15 (independent)

See support cited for Claims 1 and 14 above.

cellular phone device/cellular phone antenna - specification p. 8 lines 16-21 ["...the modem card would be connected to a traditional phone line, a cellular phone, or an antenna for a cellular phone if the cellular phone was contained within the modem card."]

CLAIM 16 (independent)

See support cited for Claims 1 and 14 above.

a switching matrix - switching matrix (90), Fig. 13

at least one of antennas and telephone jacks - antennas (92), (93) and (94) and phone jack (95), Fig. 13

a control microprocessor...interrogates the communication card... - control microprocessor (98), Fig. 13; specification p. 9 lines 20-25 ["The control microprocessor interrogates the card (85) to determine what kind of card it is and to determine what antenna or telephone connection it needs. The control microprocessor then signals the switching matrix (90)..."]

CLAIM 17 (independent)

See support cited for Claim 1 above.

a cap disposed to matingly engage said...housing - e.g. cap (134), Figs. 17-22

cap antenna contacts - e.g. contacts (151 and 152) disposed on the cap (134), Fig. 19; specification p. 12 lines 21-23.

CLAIMS 18-37 (dependent)

See Figs. 17-26, specification p. 12 line 11 - p. 15 line 19.

CLAIM 38 (independent)

See support for Claims 1 and 17 above.

a computer device... - e.g. computer terminal (60), Fig. 8

a plurality of antennas - e.g. antennas (71), (72) and (73), Fig. 12

means for selecting one of said plurality of antennas - e.g. control microprocessor (92), Fig. 13; see support cited for Claim 16 above.

CLAIM 39 (independent)

See support for Claims 1, 17 and 38 above.

said cap antenna contact disposed so as to matingly engage said radio card

antenna contact - specification p. 13 lines 4-7 ["Many variations of the contacts are possible including the use of male/female connections..."]

CLAIM 40 (independent)

See support for Claims 1 and 38 above.

CLAIM 41 (independent)

See support for Claims 1, 16 and 38 above.

CLAIM 42 (independent)

See support for Claims 1, 16 and 38 above.

CLAIM 43 (independent)

See support for Claims 1, 16 and 38 above.

CLAIM 44 (independent)

See support for Claims 1, 16 and 38 above.

CLAIM 45 (independent)

See support for Claims 1, 16 and 38 above.

CLAIM 46 (independent)

See support for Claims 1, 14, 16 and 38 above.

CLAIM 47 (independent)

See support for Claims 1, 17 and 38 above.

In light of the support for the current claims, as set forth above, Applicants respectfully submit that they are entitled to rely upon the earlier claimed priority filing date of U.S. application Serial No. 08/226,256 (Attorney Docket No. 38000FA) filed April 11, 1994, which antedates the Broadbent et al patent [5,445,525] filed May 12, 1994. Therefore, Applicants respectfully request that the Examiner withdraw the rejections of claims 1-47 based on the Broadbent et al patent under 35 U.S.C. Sec. 102 & 103.

CONCLUSION

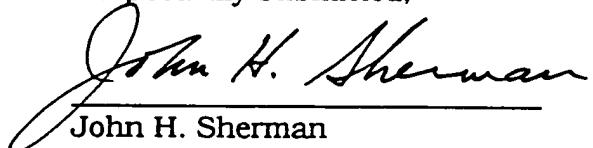
With this Amendment, Applicants have submitted new drawing figures 2A, 2B, and 2C, as well as corrected drawing figures 27 and 28, in response to the Examiner's objections to the drawings. Applicants have also responded to the Examiner's objection to claim 12. Applicants have additionally responded to and remedied the Examiner's rejections of claims 17-37 under 35 U.S.C.

Sec. 112. Finally, Applicants have relied upon the earlier claimed priority filing date of U.S. application Serial No. 08/226,256 in order to antedate the Broadbent et al patent (5,445,525) and thus obviate the Examiner's rejections to claims 1-47 under 35 U.S.C. Sec. 102 & 103.

In light of the foregoing, Applicants respectfully submit that this Amendment is responsive to all of the deficiencies noted by the Examiner in the Official Action dated 10/13/95. A Notice of Allowability is hereby courteously solicited.

Dated: Dec. 29, 1995

Respectfully submitted,



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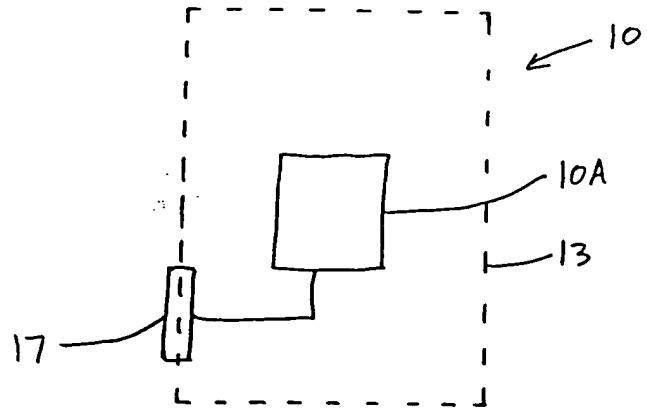


FIG. 2A

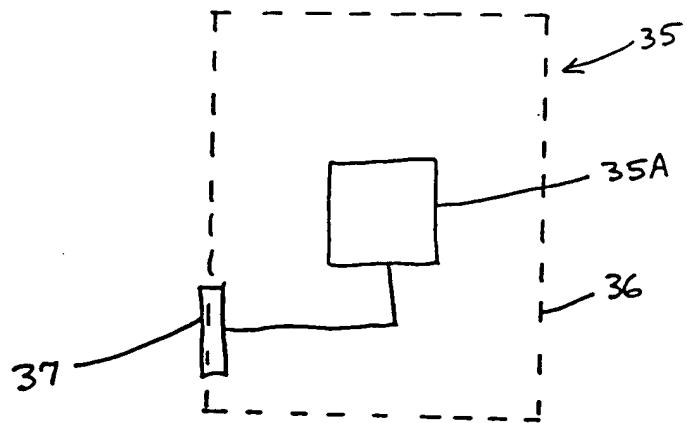


FIG. 2B

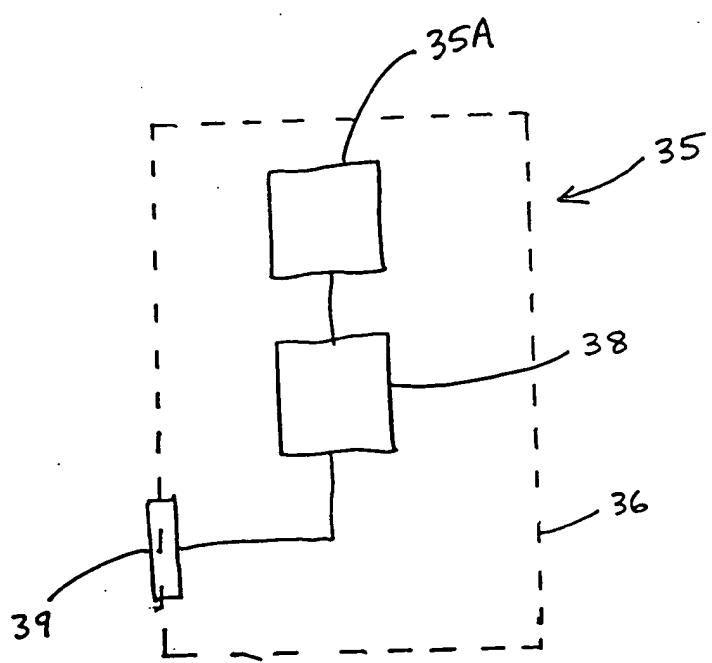


FIG. 2C

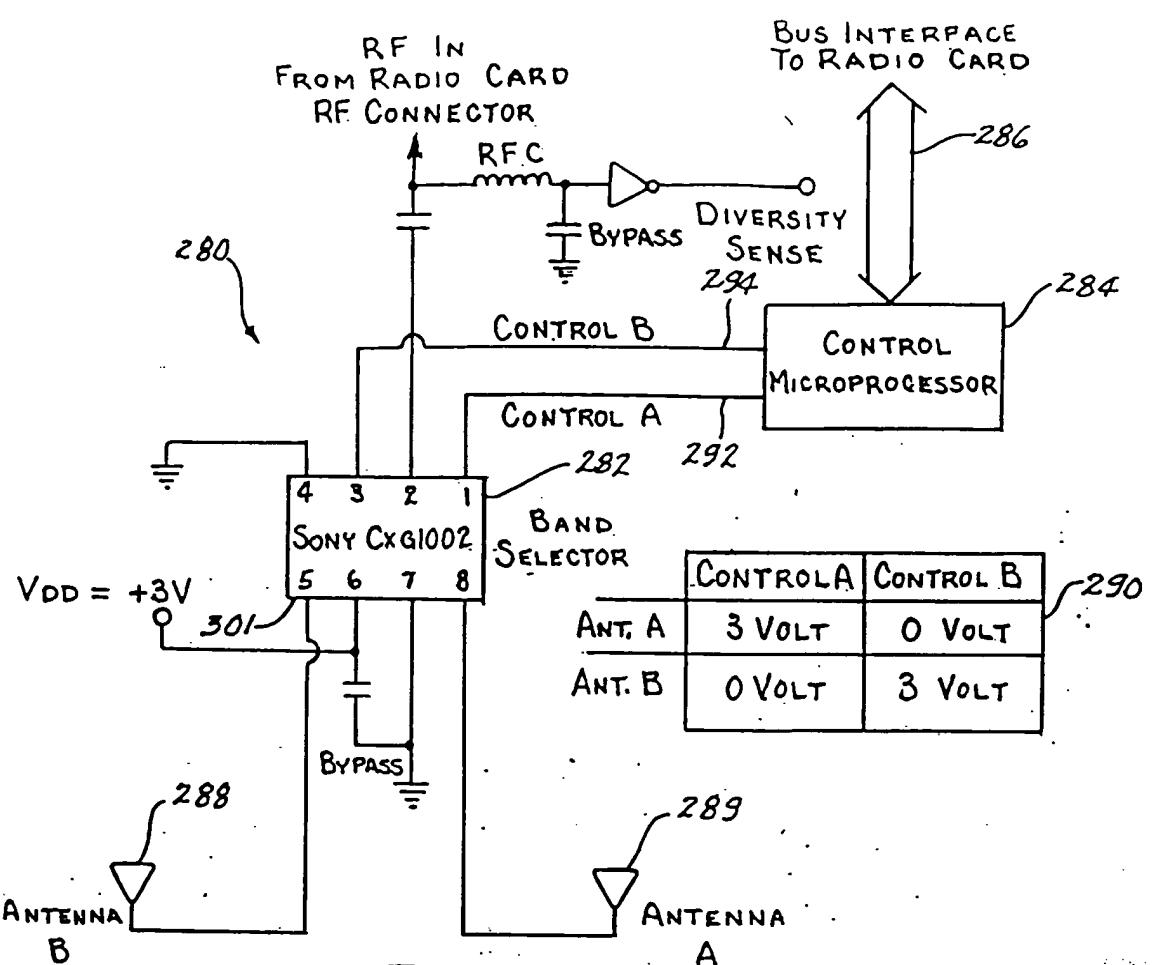


Fig. 27

ANTENNA B WITH SELECTION DIVERSITY

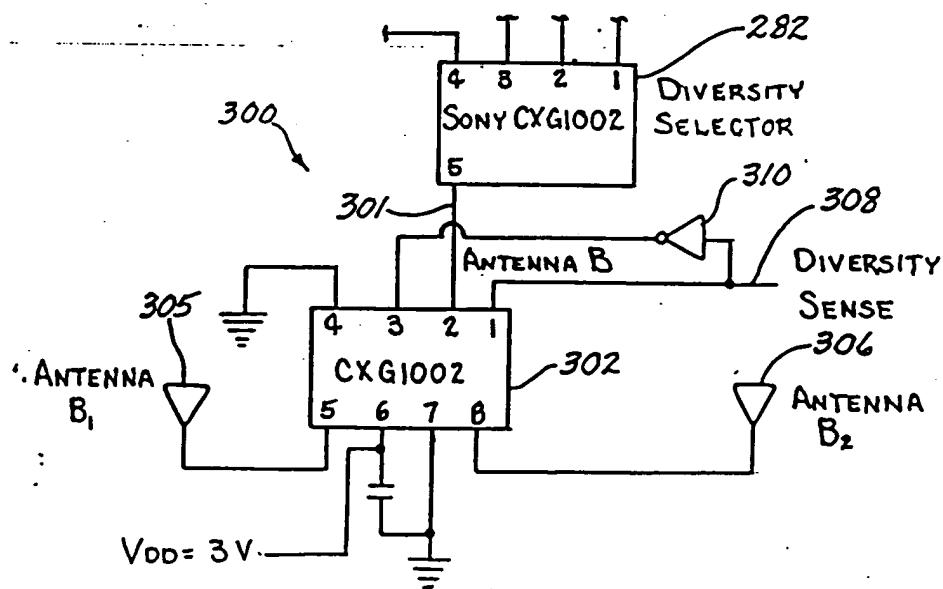


Fig. 28



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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/258,285 06/16/94 KINNEY

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MCANDREWS, HELD & MALLOY, LTD.
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ART UNIT

PAPER NUMBER

2302
DATE MAILED:

RESPONSE DUE:

10/13/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

Jan. 13, 1996

10-17-94

This application has been examined

Responsive to communication filed on _____

This action is made final.

A shortened statutory period for response to this action is set to expire _____ month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
3. Notice of Art Cited by Applicant, PTO-1449.
5. Information on How to Effect Drawing Changes, PTO-1474..

2. Notice of Draftsman's Patent Drawing Review, PTO-948.
4. Notice of Informal Patent Application, PTO-152.
6. _____

Part II SUMMARY OF ACTION

1. Claims _____ are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims _____ have been cancelled.

3. Claims _____ are allowed.

4. Claims 1-47 are rejected.

5. Claims _____ are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action.

9. The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been approved by the examiner; disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).

12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. Other

R E C E I V E D
OCT 17 1995

Art Unit: 2302

Part III DETAILED ACTION

Drawings

1. The drawings are objected to because of informalities stated on PTO-948 form. The drawings for figure 27 and 28 do not correspond to the specification on pages 9 and 10. Correction is required.
2. The drawings are objected to under 37 C.F.R. § 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the radio, cellular phone and modem inside card must be shown or the feature cancelled from the claim. No new matter should be entered.

Claim Objections

3. Claim 12 objected to because of the following informalities: Examiner believes that second should be third in these claims or the claim is equal to claim 11. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 17-37 rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding the claims, the following terms are vague and indefinite: cap, lip, and band, the term have not been well defined in the specification.

The claims with the cap where vague because the drawings didn't show which end of the card mates with the computer. Is the card inserted in backwards to mate with the cap.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1-16, 38-47 are rejected under 35 U.S.C. § 102(e) as being anticipated by Broadbent et al [5,445,525].

Broadbent et al describes a modem (col. 1, lines 43-44), a radio (col. 5, lines 53-66) and cellular phone card (col. 5, lines 53-66) which has at least three side edge contacts (see contacts 491,492) for each type of modem card which contact with antenna and phone lines inside a computer which receives the cards (see columns 5 and 6, figures 4 and 6). The switch matrix which controls the signals to which antenna the card is attached is done by the I.C. Controller shown on figure 1 and stated in

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columns 5 and 6. The cap claimed is the interface 511 and 611 has pins to matingly connect to the radio card to prevent it from falling out of the device in which it is installed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

8. Claims 17-37 are rejected under 35 U.S.C. § 103 as being unpatentable over Broadbent and well known means in the radio and modem card art.

Broadbent et al discloses the claimed invention except for a cap with antenna contacts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include antenna contacts to the interface cap 511 and 611 which has 68 pins and include two more pins for the antenna since

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it was known in the art that the location of the contacts for the antenna can be in different places on the radio card as taught by Broadbent et al because the modification would allow for ease of manufacturing the radio card with 70 pins on the one end of the card to mate with a notebook or a laptop computer.

Regarding claims 21 and 35, Broadbent describes on column 8, lines 12-43, a micro strip and a band which reduce the noise inside the radio card and the computer housing.

Broadbent et al discloses the claimed invention except for the antennas being perpendicular. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the antennas perpendicular since it was known in the art that when the antenna are perpendicular to each other this reduces the noise of the signals received.

Regarding claims 28-30, the positioning of the antennae on the housing or the PC card would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide for better reception and reduce noise for the outside environment.

Regarding claims 22,24,25,27,28,31 and 32, Broadbent et al describes with reference to figure 1 on columns 5 and 6 that the I/O device 13 can be antennae which can be of the same or different frequency. The antennae are used to receive or transmit the signals from the PC card.

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Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art have some aspects of the claimed invention in regards to PC card which connect to antenna held in computer housing receive a radio card:

Scheer [5,440,449], Mays et al [5,361,061], Diaz [5,070,340], Erkocevic [5,420,599], and Allard et al [5,422,656]

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishna Malyala whose telephone number is (703) 305-9673 or if I am unavailable communications to my supervisor A. Bowler whose telephone number is (703) 305-9702.



Krishna Malyala
October 2, 1995



ALYSSA M. BOWLER
SUPERVISORY PATENT EXAMINER
GROUP 2300

SERIAL NO. 08/258,285 GROUP ART UNIT 2302 ATTACHMENT TO PAPER NUMBER

4

NOTICE OF REFERENCES CITED

APPLICANT(S)

Kinney et al

U.S. PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
	A	5,445,525	8/29/95	Broadbent et al	439	64	5/12/94
	B	5,440,449	8/8/95	Scheer	361	686	1/26/94
	C	5,361,061	11/1/94	Mays et al	340	825.44	10/19/92
	D	5,070,340	12/3/91	Diaz	343	767	
	E	5,40,599	5/30/95	Erkocevic	343	828	3/28/94
	F	5,422,656	6/6/95	Allard et al	345	173	11/1/93
	G						
	H						
	I						
	J						
	K						

FOREIGN PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG	PP. SPEC
	L								
	M								
	N								
	O								
	P								
	Q								

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

	R	
	S	
	T	

EXAMINER

Krishna Malyala

09/21/95

Form 892BMR2107

* A copy of this reference is not being furnished with this office action.
See Manual of Patent Examining Procedure, section 707.05(a).)



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08/258, 265 06/10/94 KINNEY

F EXAMINER FB

MCANDREWS, HELD & MALLOY, LTD.
NORTHWESTERN ATRIUM CENTER
500 WEST MADISON STREET - 34TH FLOOR
CHICAGO, IL 60661

83M1/1013

MAILING DATE

ART UNIT

PAPER NUMBER

2302
DATE MAILED:

RESPONSE DUE:

10/13/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

Jan. 13, 1996

This application has been examined

Responsive to communication filed on 10-17-94

This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
3. Notice of Art Cited by Applicant, PTO-1449.
5. Information on How to Effect Drawing Changes, PTO-1474.

2. Notice of Draftsman's Patent Drawing Review, PTO-948.
4. Notice of Informal Patent Application, PTO-152.
6. _____

Part II SUMMARY OF ACTION

1. Claims 15 47 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims _____ have been cancelled.

3. Claims _____ are allowed.

4. Claims 1-47 are rejected.

5. Claims _____ are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with Informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action.

9. The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been approved by the examiner; disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).

12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. Other

RECEIVED
OCT 17 1995

Part III DETAILED ACTION

Drawings

1. The drawings are objected to because of informalities stated on PTO-948 form. The drawings for figure 27 and 28 do not correspond to the specification on pages 9 and 10. Correction is required.
2. The drawings are objected to under 37 C.F.R. § 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the radio, cellular phone and modem inside card must be shown or the feature cancelled from the claim. No new matter should be entered.

Claim Objections

3. Claim 12 objected to because of the following informalities: Examiner believes that second should be third in these claims or the claim is equal to claim 11. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 17-37 rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2302

Regarding the claims, the following terms are vague and indefinite: cap, lip, and band, the term have not been well defined in the specification.

The claims with the cap where vague because the drawings didn't show which end of the card mates with the computer. Is the card inserted in backwards to mate with the cap.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1-16, 38-47 are rejected under 35 U.S.C. § 102(e) as being anticipated by Broadbent et al [5,445,525].

Broadbent et al describes a modem (col. 1, lines 43-44), a radio (col. 5, lines 53-66) and cellular phone card (col. 5, lines 53-66) which has at least three side edge contacts (see contacts 491,492) for each type of modem card which contact with antenna and phone lines inside a computer which receives the cards (see columns 5 and 6, figures 4 and 6). The switch matrix which controls the signals to which antenna the card is attached is done by the I.C. Controller shown on figure 1 and stated in

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columns 5 and 6. The cap claimed is the interface 511 and 611 has pins to matingly connect to the radio card to prevent it from falling out of the device in which it is installed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

8. Claims 17-37 are rejected under 35 U.S.C. § 103 as being unpatentable over Broadbent and well known means in the radio and modem card art.

Broadbent et al discloses the claimed invention except for a cap with antenna contacts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include antenna contacts to the interface cap 511 and 611 which has 68 pins and include two more pins for the antenna since

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it was known in the art that the location of the contacts for the antenna can be in different places on the radio card as taught by Broadbent et al because the modification would allow for ease of manufacturing the radio card with 70 pins on the one end of the card to mate with a notebook or a laptop computer.

Regarding claims 21 and 35, Broadbent describes on column 8, lines 12-43, a micro strip and a band which reduce the noise inside the radio card and the computer housing.

Broadbent et al discloses the claimed invention except for the antennas being perpendicular. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the antennas perpendicular since it was known in the art that when the antenna are perpendicular to each other this reduces the noise of the signals received.

Regarding claims 28-30, the positioning of the antennae on the housing or the PC card would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide for better reception and reduce noise for the outside environment.

Regarding claims 22,24,25,27,28,31 and 32, Broadbent et al describes with reference to figure 1 on columns 5 and 6 that the I/O device 13 can be antennae which can be of the same or different frequency. The antennae are used to receive or transmit the signals from the PC card.

Art Unit: 2302

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art have some aspects of the claimed invention in regards to PC card which connect to antenna held in computer housing receive a radio card:

Scheer [5,440,449], Mays et al [5,361,061], Diaz [5,070,340], Erkocevic [5,420,599], and Allard et al [5,422,656]

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishna Malyala whose telephone number is (703) 305-9673 or if I am unavailable communications to my supervisor A. Bowler whose telephone number is (703) 305-9702.



Krishna Malyala
October 2, 1995



ALYSSA H. BOWLER
SUPERVISORY PATENT EXAMINER
GROUP 2300

NOTICE OF REFERENCES CITED

APPLICANT(S)

Kinney et al

U.S. PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
	A	5,445,525	8/29/95	Broadbent et al	439	64	5/12/94
	B	5,440,449	8/8/95	Scheer	361	686	1/26/94
	C	5,361,061	11/1/94	Mays et al	340	825.44	10/19/92
	D	5,070,340	12/3/91	Diaz	343	767	
	E	5,40,599	5/30/95	Erkocevic	343	828	3/28/94
	F	5,422,656	6/6/95	Allard et al	345	173	11/1/93
	G						
	H						
	I						
	J						
	K						

FOREIGN PATENT DOCUMENTS

*		DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG	PP. SPEC
	L								
	M								
	N								
	O								
	P								
	Q								

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

	R	
	S	
	T	

EXAMINER

Krishna Malyala

09/21/95

Form 892BMR2107

* A copy of this reference is not being furnished with this office action.
See Manual of Patent Examining Procedure, section 707.05(a).)



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/258, 285 06/10/94 KINNEY
B3M1/0603
MCANDREWS, HELD & MALLEY, LTD.
NORTHWESTERN ATRIUM CENTER
500 WEST MADISON STREET - 34TH FLOOR
CHICAGO, IL 60661

P 380000FB

EXAMINER

SHAH, A

ART UNIT

PAPER NUMBER

7

2302

DATE MAILED:

06/03/96

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

RESPONSE DUE:

September 3, 1996

This application has been examined

Responsive to communication filed on 1/2/96

This action is made final.

A shortened statutory period for response to this action is set to expire three (3) month(s), days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
2. Notice of Draftsman's Patent Drawing Review, PTO-948.
3. Notice of Art Cited by Applicant, PTO-1449.
4. Notice of Informal Patent Application, PTO-152.
5. Information on How to Effect Drawing Changes, PTO-1474..
6. _____

Part II SUMMARY OF ACTION

1. Claims 1-47 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims _____ have been cancelled.

3. Claims _____ are allowed.

4. Claims 1-47 are rejected.

5. Claims _____ are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action.

9. The ~~submitted~~ drawings have been received on 6/10/96. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on 1/2/96, has (have) been approved by the examiner; disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).

12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. Other

R E C E I V E M

Form PTO-1449 (Modified)		ATTORNEY. DOCKET NUMBER 38000FB	SERIAL NUMBER: 08/258,285
LIST OF INFORMATION CITED BY APPLICANT		APPLICANT, Patrick W. Kinney, et al.	
INFORMATION DISCLOSURE STATEMENT		FILING DATE June 10, 1994	GROUP NUMBER 2302

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
Ans	AA	4,661,993	4/28/87	Leland et al.	455	103	—
Ans	AB	5,097,484	5/17/92	Akaiwa	375	40	—
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AL						
	AM						
	AN						
	AO						
	AP						

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

Ans	AR	C. Patton, "Radio Transceiver Circuit Card Acts as Wireless Modem in PCs", page 18, March 1988, InfoWorld			

EXAMINER	DATE CONSIDERED
Alpesh M. Shah	5/25/96

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

PTO Draftpersons review all originally filed drawings regardless of whether they are designated as formal or informal. Additionally, patent Examiners will review the drawings for compliance with the regulations. Direct telephone inquiries concerning this review to the Drawing Review Branch, 703-305-8404.

The drawings filed (insert date) 6/10/94, are
 not objected to by the Draftsperson under 37 CFR 1.84 or 1.152.
 objected to by the Draftsperson under 37 CFR 1.84 or 1.152 as indicated below. The Examiner will require submission of new, corrected drawings when necessary. Corrected drawings must be submitted according to the instructions on the back of this Notice.

1. DRAWINGS. 37 CFR 1.84(a): Acceptable categories of drawings:
 Black ink. Color.
 Not black solid lines. Fig(s).
 Color drawings are not acceptable until petition is granted.
2. PHOTOGRAPHS. 37 CFR 1.84(b)
 Photographs are not acceptable until petition is granted.
3. GRAPHIC FORMS. 37 CFR 1.84 (d)
 Chemical or mathematical formula not labeled as separate figure. Fig(s).
 Group of waveforms not presented as a single figure, using common vertical axis with time extending along horizontal axis. Fig(s).
 Individuals waveform not identified with a separate letter designation adjacent to the vertical axis. Fig(s).
4. TYPE OF PAPER. 37 CFR 1.84(e)
 Paper not flexible, strong, white, smooth, nonshiny, and durable. Sheet(s).
 Erasures, alterations, overwritings, interlineations, cracks, creases, and folds not allowed. Sheet(s).
5. SIZE OF PAPER. 37 CFR 1.84(f): Acceptable paper sizes:
 21.6 cm. by 35.6 cm. (8 1/2 by 14 inches)
 21.6 cm. by 33.1 cm. (8 1/2 by 13 inches)
 21.6 cm. by 27.9 cm. (8 1/2 by 11 inches)
 21.0 cm. by 29.7 cm. (DIN size A4)
 All drawing sheets not the same size. Sheet(s).
 Drawing sheet not an acceptable size. Sheet(s).

6. MARGINS. 37 CFR 1.84(g): Acceptable margins:

Paper size

21.6 cm. X 35.6 cm.	21.6 cm. X 33.1 cm.	21 cm. X 27.9 cm.	21 cm. X 29.7 cm.
(8 1/2 X 14 inches)	(8 1/2 X 13 inches)	(8 1/2 X 11 inches)	(DIN size A4)
T 5.1 cm. (2")	2.5 cm. (1")	2.5 cm. (1")	2.5cm.
L .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	2.5 cm.
R .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.5 cm.
B .64 cm. (1/4")	.64 cm. (1/4")	.64 cm. (1/4")	1.0 cm.

Margins do not conform to chart above.

Sheet(s) Top (T) Left (L) Right (R) Bottom (B)

7. VIEWS. 37 CFR 1.84(h)

REMINDER: Specification may require revision to correspond to drawing changes.

- All views not grouped together. Fig(s).
 Views connected by projection lines. Fig(s).
 Views contain center lines. Fig(s).
- Partial views. 37 CFR 1.84(h)(2)
 - Separate sheets not linked edge to edge. Fig(s).
 View and enlarged view not labeled separately. Fig(s).
 - Long view relationship between different parts not clear and unambiguous. 37 CFR 1.84(h)(2)(ii)
 Fig(s).
- Sectional views. 37 CFR 1.84(h)(3)
 - Hatching not indicated for sectional portions of an object. Fig(s).
 Hatching of regularly spaced oblique parallel lines not spaced sufficiently. Fig(s).
 Hatching not at substantial angle to surrounding axes or principal lines. Fig(s).
 Cross section not drawn same as view with parts in cross section with regularly spaced parallel oblique strokes. Fig(s).
 Hatching of juxtaposed different elements not angled in a different way. Fig(s).
- Alternate position. 37 CFR 1.84(h)(4)
 - A separate view required for a moved position. Fig(s).

7

Modified forms. 37 CFR 1.84(h)(5)
 Modified forms of construction must be shown in separate views. Fig(s).

8. ARRANGEMENT OF VIEWS. 37 CFR 1.84(i)

- View placed upon another view or within outline of another. Fig(s).
- Words do not appear in a horizontal, left-to-right fashion when page is either upright or turned so that the top becomes the right side, except for graphs. Fig(s).

9. SCALE. 37 CFR 1.84(k)

- Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction. Fig(s).
- Indication such as "actual size" or "scale 1/2" not permitted. Fig(s).
- Elements of same view not in proportion to each other. Fig(s).

10. CHARACTER OF LINES, NUMBERS, & LETTERS. 37 CFR 1.84(l)

- Lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (except for color drawings). Fig(s) 1/20

11. SHADING. 37 CFR 1.84(m)

- Shading used for other than shape of spherical, cylindrical, and conical elements of an object, or for flat parts. Fig(s).
- Solid black shading areas not permitted. Fig(s).

12. NUMBERS, LETTERS, & REFERENCE CHARACTERS. 37 CFR 1.84(p)

- Numbers and reference characters not plain and legible. 37 CFR 1.84(p)(1) Fig(s).
- Numbers and reference characters used in conjunction with brackets, inverted commas, or enclosed within outlines. 37 CFR 1.84(p)(2) Fig(s).
- Numbers and reference characters not oriented in same direction as the view. 37 CFR 1.84(p)(1) Fig(s).
- English alphabet not used. 37 CFR 1.84(p)(2) Fig(s).
- Numbers, letters, and reference characters do not measure at least .32 cm. (1/8 inch) in height. 37 CFR(p)(3) Fig(s).

13. LEAD LINES. 37 CFR 1.84(q)

- Lead lines cross each other. Fig(s).
- Lead lines missing. Fig(s).
- Lead lines not as short as possible. Fig(s).

14. NUMBERING OF SHEETS OF DRAWINGS. 37 CFR 1.84(t)

- Number appears in top margin. Fig(s).
- Number not larger than reference characters. Fig(s).
- Sheets not numbered consecutively, and in Arabic numerals, beginning with number 1. Sheet(s).

15. NUMBER OF VIEWS. 37 CFR 1.84(u)

- Views not numbered consecutively, and in Arabic numerals, beginning with number 1. Fig(s).
- View numbers not preceded by the abbreviation Fig. Fig(s).
- Single view contains a view number and the abbreviation Fig.
- Numbers not larger than reference characters. Fig(s).

16. CORRECTIONS. 37 CFR 1.84(w)

- Corrections not durable and permanent. Fig(s).

17. DESIGN DRAWING. 37 CFR 1.152

- Surface shading shown not appropriate. Fig(s).
- Solid black shading not used for color contrast. Fig(s).

15. Claims 1-47 remain for examination.

16. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

18. Claims 1-47 are rejected under 35 U.S.C. § 103 as being unpatentable over Braitberg (USPN: 5,333,177) in view of Sugibara (USPN: 5,266,785).

19. Braitberg et al. disclose a system comprising a radio card, the radio card including a housing, a radio disposed within the housing, a pair of radio antenna contacts positioned on the housing and electrically connected to the radio, and a radio interface operably and electrically connected to the radio. The system further comprises means for receiving the radio card, and means disposed on the receiving means for engaging the radio electrical interface [see abstract, column 1 (line 65) - column 3 (line 34), column 4 (line 17) - column 6 (line 33), and column 7 (line 8) - column 8 (line 60)].

20. Braitberg et al. did not explicitly give details about a pair of receiving means antenna contacts disposed on the receiving means, and on antenna electrically and operably connected to the pair of receiving means antenna contacts. However, Sugibara et al. disclose a system comprising a receiving means having a pair of antenna contacts, and an antenna electrically and operating connected to the pair of antenna contacts [see abstract, Figs. 1 and 3, column 1 (line 64) - column 3 (line 22), and column 3 (line 61) - column 4 (line 29)].

22. It would have been obvious to one of ordinary skill in the art to combine the teachings of Braitberg and Sugihara because Sugihara's teachings would have allowed Braitberg's system to have a pair of antenna such that one antenna operates as a read antenna and the other antenna operates as a write antenna. The read antenna can be used for transmitting the data read request to the radio card and the write antenna can be used for transmitting the write data to the radio card, thereby allowing the system to efficiently process the data without data omissions.

23. Applicant's arguments with respect to claims 1-47 have been considered but are deemed to be moot in view of the new grounds of rejection.

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Teich et al. (PN: 5,371,508).

Ford (PN: 5,118,309).

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alpesh M.

Serial Number: 08/258285
Art Unit: 2302

-5-

Shah whose telephone number is (703) 305-9698. The examiner can normally be reached on Monday - Friday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. Bowler, can be reached on (703) 305-9702. The fax phone number for this Group is (703) 308-5358.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-9600.

AS/dah
May 28, 1996

Amelia
ALPESH M. SHAH
PATENT EXAMINER
GROUP 2300

NOTICE OF REFERENCES CITED

APPLICANT(S)

Kinney et al.

U.S. PATENT DOCUMENTS

*	DOCUMENT NO.					DATE	NAME		CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
A	5 3 7 1	5 0 8				12/94	Teich et al.		343	703	2/93
B	5 2 6 6	7 8 5				11/93	Sugihara et al.		235	384	2/92
C	5 1 1 8	3 0 9				6/92	Ford		439	620	—
D	5 3 3 3	1 7 7				7/94	Braitberg et al.		379	59	10/91
E											
F											
G											
H											
I											
J											
K											

FOREIGN PATENT DOCUMENTS

*	DOCUMENT NO.					DATE	COUNTRY	NAME	CLASS	SUB-CLASS	PERTINENT SHTS. DWG	PP. SPEC.
L												
M												
N												
O												
P												
Q												

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

R	
S	
T	
U	

EXAMINER	DATE
Alpesh M. Shah	5/25/96

* A copy of this reference is not being furnished with this office action.